

assistance and information as to local conditions, to Dr. G. F. Prior, F.R.S., for assistance in determining salinity, and to other colleagues for identifying sundry forms enumerated above.

CONCLUSIONS.

- (1) Ecologically considered *Palu-lestrin ulva* and *P. ventrosa* have distinct areas of distribution, but overlap each other slightly in this area.
- (2) This overlapping is due to the greater adaptability of *P. ventrosa*.
- (3) *P. ulva* appears to be delimited by the presence or absence of food-plants rather than by chemical or physical causes.

WORKS REFERRED TO.

- (1) ALLEN, E. J., and TODD, R. A. Journ. Marine Biol. Assoc. U.K. vi. (n. s.) 1900-02, pp. 151 & 295.
- (2) COTTON, A. D. Royal Comm. Sewage Disposal, 7th Report, App. iv. p. 22 (1911).
- (3) JOHNSON, D., and YORK, H., Johns Hopkins Univ. Circular, 1912.

LXI.—Note on the Duikers hitherto referred to *Cephalophus maxwelli*. By MARTIN A. C. HINTON.

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IN determining some duikers collected recently by Mr. Willoughby P. Lowe on two islands in the estuary of the Rokelle River, Sierra Leone, I have had occasion to examine all the material in the British Museum hitherto referred to *Cephalophus maxwelli*. As a result it would appear, firstly, that the mainland specimens in the collection belong to two distinct species, and, secondly, that the island forms are distinct from each other and from those of the mainland. The characters by which the four species recognized in this paper are distinguished may be tabulated as follows:—

- A. Males with relatively large horns; females with horns well developed. Size slightly smaller.
 - a. Nasals normal.
 - a'. Dorsal pelage not grizzled, uniform dusky; ears without conspicuous

- white fringes. [Sierra Leone to Senegal.] *C. maxwelli*.
- v*. Dorsal pelage grizzled, brighter; ears with conspicuous white fringes. [Tasso Island.] *C. lowei*, sp. n.
- b*. Nasals reduced; external characters as in *C. lowei*; smallest of group. [Yatward Island.] *C. danei*, sp. n.
- B*. Males with small horns, not larger than those of females of *C. maxwelli*; females hornless, or with minute vestiges of horns. Other external characters as in *C. maxwelli*. Size rather larger. [Liberia.] *C. liberiensis*, sp. n.

1. *Cephalophus maxwelli*, Hamilton Smith.

1826. *Antilope pygmaea*, F. Cuvier, Hist. Nat. Mamm. vol. iii. liv. lvi. pl. 379. Based on females with horns from Senegal; nec Pallas.
1827. *Antilope (Cephalophus) maxwelli*, Hamilton Smith, Griffith's Anim. Kingd. iv. p. 267. Sierra Leone.
1827. *Antilope (Cephalophus) philantomba*, Hamilton Smith, *ibid.* v. p. 349. Young specimen, Sierra Leone.
1841. *Antilope frederici*, Laurillard, Dict. Univ. Hist. Nat. i. p. 623. Renaming *A. pygmaea*, F. Cuv.
1846. *Cephalophus punctulatus*, Gray, Ann. & Mag. Nat. Hist. (1) xviii. p. 167. Based on young specimen from Sierra Leone.
1850. *Cephalophus whitfieldi*, Gray, Knowsley Menagerie, p. 11.

So far as one can judge from the descriptions, and from an examination of the types of *punctulatus* and *whitfieldi*, all the names included in the above synonymy refer to *C. maxwelli* as defined in this paper.

This species is characterized by its moderate size; uniform ungrizzled dorsal pelage, the colour being dusky in adults, brighter in the young; the whitish hairs lining the ears not forming a conspicuous fringe; normal nasals; and, above all, by the relatively large horns present in both sexes; in female, horns a little less developed than in male.

The type-locality is "Sierra Leone," and the range extends from Senegal and Portuguese Guinea southwards through Sierra Leone.

2. *Cephalophus liberiensis*, sp. n.

1853. ? *Cephalophus maxwelli*, Temminck, Esq. Zool. Guiné, p. 230.
1914. *Cephalophus (Guevei) maxwelli*, Lydekker & Blaine, Cat. Ung. ii. p. 93 (in part).

Type.—An adult male (B.M. 13. 11. 21. 13) from Mount Barclay, Liberia (altitude 200 feet); collected by Mr. R. H. Bunting. Other material, ♂, ♀ (adult).

Description.—Horns of male relatively small, no larger

than in females of *C. maxwelli*. Females hornless, but one specimen with minute traces of horn-cores 2 or 3 mm. in height. General outward appearance and colour as in *maxwelli*. Size slightly larger, the extreme length of skull being about 150 mm., instead of about 140 mm.

For skull-measurements see table at p. 532.

Range.—Liberia. At present known from Mount Barclay and from a spot "50 miles inland from Monrovia."

Whether Pel's specimens from Dabacrom, Gold Coast, described by Temminck under the name *maxwelli*, belong to the present species or to another unnamed form cannot be decided now, owing to the lack of sufficient Gold Coast material. Temminck describes the ears as "portent de larges bordures blanches le long de leur contour interne": he says that the female differs from the male only "par de très-petites cornes, souvent obtuses, ou comme perdues, et cachées dans les touffes, d'où elles prennent naissance."

3. *Cephalophus lowei*, sp. n.

Hab.—Tasso Island, Rokelle River, Sierra Leone.

Type.—An old male (B.M. 20. 7. 10. 17) collected and presented by Mr. Willoughby P. Lowe.

Description.—Horns of male about as in *C. maxwelli*; female unknown, but probably horned.

Size about as in *C. maxwelli*, perhaps slightly larger.

Essential external characters as in *maxwelli*, but dorsal colour brighter and not uniform as in latter species; the back clothed with a grizzle of black and tawny, lightening on the flanks to merge insensibly in the grey of the underparts. Head-tuft and outer surfaces of ears dark brown. Ears with conspicuous linings of pure white hairs. Rump scarcely or not at all darkened. Tail dark brown above, the tips of most hairs being white.

Skull generally as in *maxwelli*, a little larger and relatively narrower; maxillary tooth-row relatively shorter, the pre-molar series somewhat reduced.

4. *Cephalophus danei*, sp. n.

Hab.—Yatward Island, Rokelle River, Sierra Leone.

Type.—An adult male (B.M. 20. 7. 10. 18) collected and presented by Mr. Willoughby P. Lowe. An adult female (B.M. 20. 7. 10. 19) also examined.

Description.—Horns well developed in both sexes; in

Skull-measurements in Cephalophus maxwelli Group.

	<i>C. maxwelli.</i>		<i>C. lowei.</i>		<i>C. douei.</i>		<i>C. thibeticus.</i>		
	♂.	♀.	♂.	♀.	♂.	♀.	♂.	♀.	♂.
1. Condyllo-basal length	10 4.9 20	8 6.26 7	7 10 17	20 10	20 10 13	12 5.9 11	13 11 12	12 6.2 12	♂. 4
2. Extreme length	mm. 124.5	mm. 130	mm. 137.5	mm. 141.5	mm. 125.5	mm. 139	mm. 141	mm. 142.5	mm. 151
3. Zygomatic breadth	63.5	64	59.5	43	57.5	66	53	52.5	55
4. Cranial width	46	48	50	49.5	43	45	43.5	57	27
5. Nasal length	47	50	50.5	28	39.5	20	29	24	76
6. Nasal width (at base)	24.5	24	28.5	21	20	64	71	75.5	46.5
7. Orbit to tip of premaxilla	67	68	71	43	41.5	46	46	75	71.5
8. Length of diastema	42	40	45.5	70.5	64.5	65.5	78.5	42.5	41.5
9. Palatal length	65	69	39	...	33.5	39	24	25.5	22.5
10. pm_2-m_3	41	41	22.5	...	21	21.5±	11.5	12.5±	0
11. m_1-m_3	17.8	...	8	9	10.5	11	11.5	0	0
12. Least distance between bullae	10	...	40*	39	39.5	34	44	34	0
13. Length of horns	59	52	...	...	...	...	...	...	...
	Reduction 1 = 100								
1	109	110	106	106.5	106.5	107	108	106	...
2 =	51.2	49.2	43.3	47.5	47.5	47.8	...	...	36.8
3 =	37	38.1	36.4	37.7	35.8	36.5	36.2	38.1	38.6
4 =	37.8	38.5	36.7	32.7	32.7	41.4	35.9	41	18.9
5 =	19.7	21.5	20.7	16.5	16.3	20.2	17	20.2	53.4
6 =	54	54.8	51.7	53	52	53.6	53.3	53.6	32.6
7 =	33.8	33.1	33	34.3	32.2	33.7	33	33.1	50.2
8 =	52.4	54.2	52	53.5	52.3	54.7	55	55	29.1
9 =	33	...	28.3	29.3	31	29.5	31.6	30.6	15.8
10 =	14.3	...	16.3	17.4	17.1	16.7	18.1	17.3	8.8
11 =	8	...	5.8	8.7	8.7	8	8.9	8.6	0
12 =	47.5	41.8	29*	32.7	27.1	30.6	0	24.5	0

* In present condition; tips of horns have been hacked off.

males a little smaller relatively than in *maxwelli*; sexual disparity less marked than in the latter.

Coloration and external characters, apart from smaller size, exactly as in *C. lowei*; size, if anything, less than in *maxwelli*.

Skull conspicuously differing from those of other members of the group in the unusually small nasals. In both sexes these bones are shorter and narrower, absolutely and relatively, than in either *maxwelli* or *lowei*. In *liberensis* there is a sexual difference in this respect, the males having nasals as large as, or larger than, in *lowei* and *maxwelli*, while in the females these bones approach those of *danei*. Maxillary tooth-row intermediate in relative length between *lowei* and *maxwelli*, the molar series being relatively longer than in either.

Remarks.—I have much pleasure in naming this interesting duiker after Captain A. M. Dane, of H.M.S. 'Dwarf,' to whom Mr. Lowe was indebted for much hospitality and active assistance during his trip to Sierra Leone.

LXII.—*New small Mammals from New Guinea.*

By OLDFIELD THOMAS.

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Pipistrellus papuanus collinus, subsp. n.

Like true *papuanus*, but larger.

General characters, including colour, structure of tragus, dentition, and other details, all as in *papuanus*. Size, however, markedly larger, the forearm attaining 36 mm. as compared with 28–31 mm., and the skull also decidedly larger.

Dimensions of the type:—

Forearm 36 mm.

Third finger, metacarpal 33·5, first phalanx 13; lower leg and hind foot 22·5.

Skull: greatest length 13·2; breadth of brain-case 6·9; palato-sinual length 4·8; maxillary tooth-row 5; p^1-m^2 3·2.

Hab. of type. Bihagi, head of Mambari River, British Papua. Other specimens from Danawa, Owen Stanley Mountains, and the Upper Aroa River.

Type. Adult male. B.M. no. 13. 11. 7. 4. Collected 13th April, 1906, by A. S. Meek.

The Pipistrels of New Guinea all seem referable to *P. papuanus*. The great majority are comparatively small, with